Answers to Exercises 7

B The strict negations of the sentences on the left can be expressed as on the right:

1. No one loves Jack
   Someone loves Jack

2. Only unmarried men love Jill
   Someone who isn’t an unmarried man loves Jill
   (not: Some married man loves Jill—perhaps it is some woman who loves Jill …)

3. Everyone who loves Jack admires Jill
   Someone loves Jack but doesn’t admire Jill

4. Someone loves both Jack and Jill
   No one loves both Jack and Jill

5. Jill always arrives on time
   Jill sometimes does not arrive on time

6. Whoever did that ought to be prosecuted
   There’s someone who did that who need not be prosecuted (?)

7. Whenever it rains, it pours.
   Sometimes it rains without pouring.

8. No one may smoke
   There’s someone who may smoke

C The sentences on the right express contraries but not contradictories of the propositions expressed by the sentences on the left.

1. No one loves Jack
   Everyone loves Jack (or e.g. Some woman loves Jack or Jill loves Jack …: there’s no unique answer.)

2. Only unmarried men love Jill
   Some woman loves Jill

3. Everyone who loves Jack admires Jill
   No one who loves Jack admire Jill

4. Someone loves both Jack and Jill
   No woman loves both Jack and Jill

5. Jill always arrives on time
   Jill never arrives on time

6. Whoever did that ought to be prosecuted
   No one who did that ought to be prosecuted

7. Whenever it rains, it pours.
   It never pours when it rains.

8. No one may smoke
   Everyone may smoke

D Using the same translation manual as in §7.5, render the following into PL:

1. Jack is unwise and loves Jill.
   (¬S ∧ P)

2. It isn’t true that Jack doesn’t love Jill.
   (P ∧ ¬R)

3. Jack loves Jill and Jo doesn’t.
   (P ∨ ¬S) ∧ ¬R

4. Jack doesn’t love Jill, neither is he wise.
   (¬P ∧ ¬S)

5. Either Jack loves Jill or Jill loves Jack.
   (P V Q)

6. Either Jack loves Jill or Jill loves Jack, but not both.
   ((P V Q) ∧ ¬(P ∧ Q))

7. Either Jack is unwise or he loves Jill and Jo loves Jill.
   this is ambiguous: it could mean
   (¬S ∨ Q) ∧ R
   or else
   (¬S ∨ (Q ∧ R))